

# CONTROLLING THE NANOTRIBOLOGY OF NANOSTRUCTURED DIAMOND FILMS

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## Abstract

We will discuss recent studies of the nanotribological properties of carbon-based thin films, particularly nanocrystalline diamond, tetrahedral amorphous carbon, and diamond-like carbon. By using atomic force microscopy for nano-scale friction measurements and surface spectroscopy techniques for detailed chemical and structural studies, we are able to demonstrate that the carbon bonding configuration ( $sp^2$  vs  $sp^3$  hybridization) and chemical termination of the surfaces has a strong effect on nanoscale friction and adhesion. We will present these results and discuss their potential impact for nano-, micro-, and macro-scale applications.

## REFERENCES

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